

WHAT IS CLAIMED IS:

1. An X-ray digital tomographic image taking apparatus comprising:

an X-ray generation unit for emitting X-rays;

5 a first transfer unit for changing the emission direction of X-rays emitted by the X-ray generation unit and transferring the X-ray generation unit;

a solid state image sensing unit consisting of a plurality of solid state image sensing elements for
10 converting X-rays to electric signals;

a second transfer unit for transferring the solid state image sensing unit; and

a control unit for controlling the first transfer unit and second transfer unit so that X-rays
15 emitted from said X-ray generation unit are emitted to predetermined coordinates on the photoreceiving surface of said solid state image sensing unit, and controlling the emissions of the X-ray generation unit and the drive of the solid state image sensing
20 unit,

wherein said control unit divides the course along which said X-ray generation unit or solid state image sensing unit is moving into a plurality of sections and controls said X-ray generation unit so
25 that the quality of said X-rays differs between neighboring sections.

2. The apparatus according to claim 1, wherein said control means divides the course along which said X-ray generation unit or solid state image sensing unit is moving into a plurality of sections and controls said X-ray generation unit so that the quality of said X-rays differs from one section to another and controls the drive of said solid state image sensing unit so that said solid state image sensing element stores charge while substantially keeping the amount of charge for a period during which said X-ray generation unit is repeating emissions a predetermined number of times or for each section.

3. The apparatus according to claim 1, wherein said control means divides the course along which said X-ray generation unit or solid state image sensing unit is moving into a plurality of sections and controls said X-ray generation unit so that the quality of said X-rays differs from one section to another, controls the drive of said solid state image sensing unit so that said solid state image sensing element stores charge while substantially keeping the amount of charge for a period during which said X-ray generation unit is repeating emissions a predetermined number of times or for each section and controls the drive of said solid state image sensing

unit so that said solid state image sensing element discharges after a predetermined number of emissions or for said each section.

5 4. The apparatus according to claim 1, wherein the quality of said X-rays is changed by switching the tube voltage of said X-ray generation unit between a high voltage and low voltage.

10 5. The apparatus according to claim 1, wherein the X-ray digital tomographic image taking apparatus allows a plurality of types of X-ray filters for changing X-ray energy to be selected and placed between said X-ray generation unit and solid state
15 image sensing unit, and comprises filter replacing means for replacing said X-ray filters, said controlling means changing the quality of X-rays by controlling said filter replacing means.

20 6. The apparatus according to claim 1, wherein said tomographic image taking apparatus comprises:

an A/D conversion unit for A/D-converting the output of said solid state image sensing unit into image data; and

25 a storing unit for saving the image data output from said A/D conversion unit at a predetermined image taking interval.

7. The apparatus according to claim 6, further comprising:

calculating means for reconstructing the image data taken with the same quality out of the image

5 data stored in said storage unit as a tomographic image of the quality; and

subtracting means for carrying out a weighted subtraction on a plurality of tomographic images differing in quality which are reconstructed by said

10 calculating means.